	Application No.	Applicant(s)
Notice of Allowability	09/985,676	PATEL ET AL.
	Examiner	Art Unit	
	Shawki S. Ismail	2155	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address*--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *the communication received on December 3, 2007*.

2. ☒ The allowed claim(s) is/are *9-11 and 19-23; re-numbered 1-8*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some*   c) ☐ None   of the:

        1. ☐ Certified copies of the priority documents have been received.

        2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

        3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

    * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application. **THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.

    (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached

        1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____ .

    (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of

        Paper No./Mail Date _____ .

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)

2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)

3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____

4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

5. ☐ Notice of Informal Patent Application

6. ☒ Interview Summary (PTO-413), Paper No./Mail Date *2/18/2008* .

7. ☒ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____ .

SALEH NAJJAR
SUPERVISORY PATENT EXAMINER

EXAMINERS AMENDMENT

1.   An examiner's amendment to the record appears below. Should the changes and /or additions by unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such amendment, it must be submitted no later than the payment of the issue fee.

2.   Authorization for this examiner's amendment was given in a telephone interview with Garth Richmond (reg. No. 43,044) on January 29, 2008.

3.   The application has been amended as follows:

Claims 9, 12, 19, and 23 have been replaced with the following amended claims.

9. (Currently Amended) A method for routing packets received at a network device, the method comprising:

converting the packets into a plurality of data structures;

forwarding, using forwarding logic of the network device, the data structures to a plurality of processing engines of the network device;

processing, by one of the processing engines, a first data structure relating to one of the packets;

halting the processing of the first data structure when first processing information is needed to continue the processing of the first data structure and initiating processing of a second data structure;

halting the processing of the second data structure when either second

processing information is needed to continue the processing of the second data

structure or the first processing information is obtained by the one processing engine;

monitoring, by a monitor of the network device, a processing state of the one

processing engine to identify partial processing results based on the halted processing

of the first data structure in advance of the identified need for the first processing

information;

performing, at the one processing engine, a route lookup for the first data

structure using the partial processing results;

modifying, at the one processing engine, the first data structure based on the

route lookup; and

routing, using a switch fabric of the network device, the one packet based on the

modified data structure[[.]]; and

wherein said performing the route lookup includes:

performing, at each processing engine, concurrent route lookups for up to

four different data structures.

12. (Cancelled).

19. (Currently Amended) A system for performing concurrent route lookups for

processing a plurality of data items [[,]] associated with routing a packet received at a

network device, comprising:

forwarding, using forwarding logic of the network device, the data items to a

plurality of processing engines of a network device;

a data processing portion that processes one of the data items and submits a

data requests to a memory that stores information needed for the processing, wherein

the data request halts the processing of the one data item and initiates the processing

of another one of the data items;

a control state portion that monitors operation of the data processing portion by

receiving state information related to a partial processing result produced from the

halted processing of the one data item by the data processing portion based on a

prospective request for the stored information;

a buffer that stores the partial processing result; and

a controller that loads the partial processing result from the data processing

portion into the buffer and inputs the other data item into the data processing portion for

processing while the requested data is obtained for the one data item, wherein the data

processing portion resumes the processing of the one data item in an order that differs

from an order in which the processing of the one data item was halted.

performing, at a processing engine, a route lookup for the data item using the

partial processing results;

modifying, at the one processing engine, the data item based on the route

lookup; and

routing, using a switch fabric of the network device, the one packet based on the

modified data items; and

wherein said performing the route lookup includes:

performing, at each processing engine, concurrent route lookups for up to four

different data items.

23. (currently amended) A system [[,]] for routing packets received at a network

device, the system comprising:

converting the packets into a plurality of data structures;

forwarding, using forwarding logic of the network device, the data structures to a

plurality of processing engines of the network device;

means for processing data structures and requesting information from an

external source when the information is projected to be needed to accomplish the

processing of the data structures, wherein the requesting suspends a processing of one

of the data structures to form partial processing results and initiates a processing of

another one of the data structures;

means for monitoring operation of the means for processing via state information

associated with the partial processing results produced by the means for processing;

means for storing the partial processing results from the means for processing at

least until such time as the requested information becomes available to the means for

processing; and

means for loading the partial processing results into the means for storing and

loading the other data structure into the means for processing upon the suspension of

the processing of the one data structure, loading the partial processing results into the

means for processing after the requested information becomes available, and resuming

the processing of the one data structure.

performing, at a processing engine, a route lookup for the data structure using

the partial processing results;

modifying, at the one processing engine, the data structure based on the route

lookup;

routing, using a switch fabric of the network device, the one packet based on the

modified data structure; and

wherein said performing the route lookup includes:

performing, at each processing engine, concurrent route lookups for up to four

different data structures.

REASONS FOR ALLOWANCE

4.   The following is an Examiner's Statement of Reasons for Allowance:

Claims 9-11 and 19-23 are allowable over the prior art of record.

The examiner has found that the prior art of record does not teach or suggest or render obvious a system and method for routing packets received at a network device, wherein processing engines process data and halt processing of the data when information is needed to continue processing of the first data and initiating processing of a second data and halting processing of the second data when information is need to continue processing of the second data or the first information that is needed to process the first data is obtained by one of the processing engines, monitoring a processing state of the one processing engine to identify partial processing results based on the halted processing of the first data in advance of the identified need for the first processing information and performing concurrent route lookups for up to four different data structures/items, modifying the first data structure/item based on the route lookup and routing the one packet based on the modified data structure/item as set forth in the specification and recited in the independent claims.

5.   Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submission should be clearly labeled "Comments on Statement of Reasons for Allowance."

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shawki S Ismail whose telephone number is 571-272-3985. The examiner can normally be reached on M-F 8:30 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saleh Najjar can be reached on 571-272-4006. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Shawki Ismail
Patent Examiner
February 18, 2008

SUPERVISORY PATENT EXAMINER